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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/816,337

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John M. de Larios

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EXAMINER

GUIDOTTI, LAURA COLE

ART UNIT

PAPER NUMBER

1744

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/816,337

Applicant(s)

DE LARIOS ET AL.

Examiner

Laura C. Guidotti

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20, 29 and 30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by Miyashita et al., USPN 6,167,583.

Miyashita et al. disclose the claimed invention including a first brush enclosure (35), a first brush having a majority of an outer diameter of the first brush enclosed within the first brush enclosure (4; the majority of an outer diameter is considered to be enclosed by the enclosure because the first brush rotates, and therefore every singular location on the brush is enclosed at some point during rotation) that is configured to be disposed vertically above a top surface of a substrate so that the first brush contacts the substrate through an open region at a bottom of the first brush enclosure (as shown in Figure 1), a first drive roller (11), a second drive roller (also 11; Column 5 Lines 12-14), the first and second drive rollers configured to receive an edge of the substrate to support and rotate the substrate (see Figures; Column 5 Lines 12-14), a second brush enclosure (34), a second brush having a majority of an outer diameter of the second

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brush enclosed within the second brush enclosure (3; the majority of an outer diameter is considered to be enclosed by the enclosure because the second brush rotates, and therefore every singular location on the brush is enclosed at some point during rotation), the second brush and second brush enclosure disposed vertically below a bottom surface of the substrate so that the second brush contacts the substrate through an open region at a top of the brush enclosure (as shown in Figure 1).

2. Claims 1-2, 4, 7-10, 13, and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin, US 2002/0112312.

Lin discloses the claimed invention including a brush enclosure (42) extending over a length (see Figures 1-2), the brush enclosure is capable of being "configured" to be disposed vertically over a horizontal surface of the substrate (surface 8; see Figures; it is capable of being configured in such a manner), the brush enclosure having an open region (unlabeled, where brush is located, see Figures) that is capable of being "configured" to be disposed in proximity to a horizontal surface of the substrate (see Figure 2; it is capable of being configured in such a manner), the open region being capable of enabling foam from within the brush enclosure to contact a substrate, the open region extending over the length of the brush enclosure (see Figures; see MPEP 2114 which recites "While features of an apparatus may be recited either structurally or functionally, claims directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. >In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997)), a first flange extending from the brush enclosure along the length and along a first side of an open region (portion where "44"

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is located, see Figures) and a second flange extending from the brush enclosure along the length and along a second side of the open region (portion where "43" is located, see Figures), the first and second flanges define surfaces that are capable of being substantially parallel to the surface of the substrate (as shown in Figures 2 and 4).

Regarding claims 2 and 9, there is a brush disposed within the brush enclosure (41), the brush capable of being "configured" to deliver a fluid to the horizontal surface of a substrate through a conduit around an axis of the brush (conduit is 431, 441).

Regarding claims 4 and 13, the brush enclosure has a tubular shape (see Figures).

Regarding claims 7 and 16, the length of the brush enclosure is configured to extend a length of a brush (as shown in Figures 1-2). Regarding claim 8, the enclosure is configured to enclose a brush (41), the elongated enclosure (42) having opposite ends defining a length and having an open region along the length of the enclosure (open region which houses the brush, see Figures), the open region capable of being "configured" to be disposed above the surface of the substrate (Figure 6) so that the brush is capable of making contact with a surface of the substrate when it is present (Figures), and there is a flange along the length of the elongated enclosure extending radially outward from an outer surface of the elongated enclosure (either portion where "43" is located or "44" is located), the flange defining a surface that is substantially parallel to the surface of a substrate when a substrate is present (see Figure 4), the flange defining a flat boom surface capable of being substantially parallel to the horizontal surface (see Figures). Regarding claim 10, wherein a space between the flat bottom surface of the flange and the surface of the substrate is present defines a gap

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(again, as shown in Figure 4), the gap capable of *enabling* production of jammed foam (see MPEP 2114). Regarding claim 17, the open region extends over the length of the elongated enclosure (where brush is located, see Figures).

3. Claims 18 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Boyd et al., US 2005/0132515.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Boyd et al. disclose the claimed invention including a first brush enclosure (200), a first brush (210) having a majority of an outer diameter of the first brush enclosed within the first brush enclosure (see Figures 2C and 6 particularly), the first brush being configured to be disposed vertically above a top surface of a substrate so that the first brush contacts the substrate through an open region at a bottom of the first brush enclosure (paragraph 36, see Figures), a first drive roller (610), a second drive roller (also 610, shown in Figure 6), the first and second drive rollers being configured to receive an edge of the substrate to support and rotate the substrate when placed below the first partially enclosed brush (Figure 6, paragraphs 36 and 45), a second brush enclosure (also 200, paragraph 36 states that "one PBU 200 can be proximately disposed on each side of wafer 100"), and a second brush (also 210, paragraph 36)

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having a majority of an outer diameter of the second brush enclosed within the second brush enclosure (see Figures 2C and 6 particularly), the second brush being configured to be disposed vertically below a top surface of a substrate so that the second brush contacts the substrate through an open region at a bottom of the top brush enclosure (paragraph 36, see Figures). Regarding claim 29, the first and second brushes are configured to deliver a fluid to the opposite surface of the substrate through a conduit defined around an axis of the respective brushes (via 240; paragraph 33).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 5-6 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin, US 2002/0112312, as applied to claims 1 and 8 respectively, in view of Ravkin, USPN 6,290,780.

Lin discloses all elements above however does not disclose that the brush enclosure is defined from a chemically inert material and does not include a material such as plastic, DELRIN®, polyvinylidene fluoride (PVDF), and polyethylene terephthalate (PET).

Ravkin discloses a cleaning system and further recognizes and teaches that in order to withstand the corrosive effects of the acid in the cleaning system that the components in the cleaning system must comprise of a plastic, DELRIN®, or PET (Column 3 Line 63 to Column 4 Line 2).

It would have been obvious for one of ordinary skill in the art to modify the elongated enclosure of Lin to comprise of plastic, DELRIN®, or PET, as Ravkin teaches, as alternative materials that are additionally chemically inert and will prevent rapid corrosion when cleaning with detergents that may include acid.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin, US 2002/0112312 as applied to claim 1.

Lin discloses all elements above, however does not disclose a specific gap amount, particularly a gap of 0.1 mm to about 5 mm.

It would have been obvious for one of ordinary skill in the art to modify the gap distance of Lin so that it is in the range of 0.1 mm to about 5 mm in order to optimize the cleaning capabilities of Lin based on the intended use and desired results of the user.

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Furthermore, "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."

In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al., USPN 6,167,583, as applied to claim 18, in view of Krussell et al., USPN 6,594,847.

Miyashita et al. disclose all elements above, however does not disclose that the substrate cleaning system comprises a housing.

Krussell et al. teach a wafer substrate cleaning system that has a housing (400; Figures 7A-7C) that encloses the substrate cleaning system in order to contain it and to reduce environmental particulates (Column 8 Lines 11-14, 35-40).

It would have been obvious for one of ordinary skill in the art to modify the cleaning system of Miyashita et al. and further include a housing to enclose the cleaning system, as Krussell et al. teach, in order to contain the system and to prevent particulates from escaping into the environment.

7. Claims 1-4, 7-13, 16-17 19, and 30 are rejected under 35 U.S.C. 103(a) as being obvious over Boyd et al., US 2005/0132515.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an

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invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Boyd et al. discloses all elements mentioned above. Further Boyd et al. discloses the claimed invention including a brush enclosure (200) extending over a length (see Figure 2A), the brush enclosure configured to be vertically disposed over a horizontal surface of the substrate (100; see Figures, paragraph 36), the brush enclosure having an open region (205; Figure 2C; paragraph 40) that is configured to be disposed in proximity to the horizontal surface of the substrate (see Figures), the open region being capable of enabling foam from within the brush enclosure to contact a substrate, the open region extending over the length of the brush enclosure (see Figures; paragraph 36), and further the side of the brush enclosure along the length and along a first side of an open region is capable of acting as a "flange", and a second side of the the brush enclosure along a length and second side of the open region acts as a second "flange", wherein a flat bottom surface of the "flanges" is substantially parallel to the horizontal surface of the substrate (the sides along the length of the open region

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of 200 are wall-like in structure, however they are capable of function the same way as a "flange" to contain cleaning liquid within a region; see Figures; paragraphs 30-32) (claims 1, 8, 19). Regarding claims 2 and 9, there is a brush disposed within the brush enclosure (210), the brush configured to deliver a fluid to the horizontal surface of the substrate through a conduit defined around an axis of the brush (via 240; paragraph 33). Regarding claims 3, 10, 12, and 30, first and second "flanges" each have an opening extending therethrough (such as 330), the opening connected to a vacuum source and/or conduit for removing fluid through the opening (paragraph 41), the fluid present between the flat bottom surface and the horizontal surface of the substrate (paragraph 41, Figure 3). Regarding claims 7 and 16, the brush enclosure is configured to extend a length of the brush (see Figures 2A-2C). Regarding claim 10, a space between the flat bottom surface of the flange and the surface of the substrate, when the substrate is present defines a gap (see Figures). Regarding claim 11, the gap has a dimension from about 0.1 mm to about 5mm (paragraph 45). Regarding claim 17, the open region extends over the length of the elongated enclosure (Figures 2A-2C). Boyd et al. does not disclose an actual first and second flange extending *outward* or *radially outward* (when the enclosure has a tubular shape) from the brush enclosure.

It would have been obvious for one of ordinary skill in the art to modify the walls of the enclosure of Boyd et al. so the walls would be of a flange shape instead of simply vertical shaped walls and to further modify the shape of the enclosure so that it is tubular in order to use less raw material when constructing the enclosure. Applicant has not disclosed that how the flange(s) and tubular shape of the enclosure provides an

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advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the enclosure of Boyd et al. because it has openings on the flat bottom surface that is substantially parallel to the horizontal surface of the substrate when the substrate is present.

Response to Arguments

8. Applicant's arguments filed 11 December 2006 have been fully considered but they are not persuasive.

As stated previously above, Lin does in fact teach a flange having a flat bottom surface and a brush vertically disposed over a horizontal surface of a substrate.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura C. Guidotti whose telephone number is (571) 272-1272. The examiner can normally be reached on Monday-Thursday, 7:30am - 5pm, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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